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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,621	01/10/2002	Young-Sin Park	030681-346	5259
21839	7590	05/20/2004	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			CREPEAU, JONATHAN	
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ALEXANDRIA, VA 22313-1404			PAPER NUMBER	

1746

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/041,621

Applicant(s)

PARK ET AL.

Examiner

Jonathan S. Crepeau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/27, 1/10, 8/7.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, and 11-13 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 2001-256967. Regarding claim 1, the reference teaches a thin film anode comprising a current collector and an anode material comprising an Sn-Ni intermetallic compound thereon (see abstract). Regarding claims 2 and 12, the intermetallic compound can be Ni<sub>3</sub>Sn<sub>4</sub> (see paragraph 18 of the machine translation). Regarding claim 11, the anode is used in a lithium ion battery (see paragraph 2).

Thus, the instant claims are anticipated.

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3. Claims 1, 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 11-86854. Regarding claim 1, the reference teaches an anode material comprising an intermetallic material comprising a lithium-storing phase and a non-lithium storing phase (see abstract). The lithium storing phase is preferably Al, Si, Sn, or Pb (see paragraph 11 of the machine translation). The non-lithium storing phase is preferably Cr, Fe, Co, Ni, or Cu (see paragraph 16). These disclosures are considered to be anticipatory of an Ni-Sn intermetallic material. Further, the thin film anode comprises a current collector (see paragraph 20). Regarding claim 11, the anode is used in a lithium ion battery (see paragraph 11).

Thus, the instant claims are anticipated.

4. Claims 1, 2, and 9-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Bito et al (U.S. Patent 6,265,111). Regarding claim 1, the reference teaches a thin film anode comprising a current collector and an anode material comprising an Sn-Ni intermetallic compound thereon (see abstract; col. 3, line 32). Regarding claims 2, 10, and 12, the intermetallic compound can be  $\text{Ni}_3\text{Sn}_4$  (see Table 1, line 8). Regarding claim 11, the anode is used in a lithium ion battery (see abstract). Regarding claim 9, the anode material may be made by a mechanical alloying method and an ion-beam assisted deposition method (see col. 6, line 43 et seq.).

Thus, the instant claims are anticipated.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bito et al. in view of JP 4-308081.

Bito et al. is applied to claims 1, 2, and 9-13 for the reasons stated above. In addition, the reference teaches that the manufacturing methods include ion beam "sputtering" and vacuum vapor deposition (col. 6, line 46). However, Bito et al. do not expressly teach that the sputtering is mosaic sputtering (claim 3), co-sputtering (claim 5), or single-target sputtering (claim 7).

JP 4-308081 is directed to a sputtering target. As disclosed in the Derwent abstract, the target is a "mosaic" target that comprises pieces of two different compositions assembled on a single base plate. The compositions are elemental metals.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the sputtering target of JP '081 to form the anode material of Bito et al. In the JPO abstract, the reference teaches that the purpose of the invention is "to reduce the fraction defective of products by specifying the percentage of single crystals and/or macro-grains of the constituents of a target." Further, the abstract teaches that "the productivity of the target can be improved." As

such, the artisan would be motivated to use the sputtering target of JP '081 (modified to include Sn and Ni) to form the anode material of Bito et al. The target of JP '081 is considered to render obvious all the limitations of the instant claims, i.e., it can be used in mosaic sputtering, co-sputtering, and single target sputtering (since the target as a whole can be considered to be a "single" target).

### *Conclusion*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (571) 272-1302. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

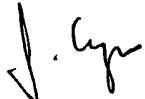
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau  
Patent Examiner  
Art Unit 1746  
May 17, 2004